WHAT IS CLAIMED IS:

1. A method of determining vulnerable plaque in a cardiovascular lumen, comprising:

inserting a guide member into the cardiovascular lumen, the guide member including a temperature sensor and a distance sensor;

measuring a cardiovascular wall temperature with the temperature sensor;

determining a distance from the temperature sensor to the cardiovascular wall with the distance sensor;

adjusting the cardiovascular wall temperature measurement based on the distance determination; and

determining the vulnerable plaque based on the adjusted cardiovascular wall temperature measurement.

2. The method of claim 1 wherein the guide member is a catheter.

3. The method of claim 1 wherein the guide member is a guidewire.

4. The method of claim 1 wherein the temperature sensor comprises a resistive temperature device.

5. The method of claim 1 wherein the temperature sensor comprises a thermocouple or a thermopile.

6. The method of claim 1 wherein the temperature sensor comprises an infrared detector.

7. The method of claim 6 wherein the infrared detector has an optical passband corresponding to a region of transparency through bodily fluid within the cardiovascular lumen.

8. The method of claim 7 wherein a wavelength within the region of transparency ranges between 3.7 microns and 4.3 microns or between 4.6 microns and 5.4 microns.

9. The method of claim 1 wherein the distance sensor comprises an optical sensor.

10. The method of claim 1 wherein the distance sensor comprises an ultrasonic transducer.

11. The method of claim 1 further comprising:

determining a baseline temperature of the cardiovascular lumen wall based on a plurality of adjusted cardiovascular wall temperature measurements;

comparing each adjusted cardiovascular wall temperature measurement to the baseline temperature; and

determining the vulnerable plaque when the adjusted cardiovascular wall temperature measurement is above the baseline temperature by at least a predetermined threshold.

12. The method of claim 1 further comprising:

measuring a fluid flow rate proximate the temperature sensor and the distance sensor with a flow sensor coupled to the guide member; and

adjusting the cardiovascular wall temperature measurement based on the fluid flow rate measurement.

13. The method of claim 1 further comprising:

applying a therapy for the vulnerable plaque.

14. The method of claim 1 further comprising:

determining a position of the vulnerable plaque; and

treating the vulnerable plaque.

15. The method of claim 14 wherein the position of the vulnerable plaque is determined by a radiopaque marker on the guide member.

16. The method of claim 14 wherein the position of the vulnerable plaque is determined by a radio frequency coil attached to the guide member.

17. The method of claim 14 wherein the position of the vulnerable plaque is determined by an ultrasonic marker transducer coupled to the guide member.

18. A system for determining vulnerable plaque in a cardiovascular lumen, comprising:

means for inserting a guide member into the cardiovascular lumen, the guide member including a temperature sensor and a distance sensor;

means for measuring a cardiovascular wall temperature with the temperature sensor;

means for determining a distance from the temperature sensor to the cardiovascular wall with the distance sensor;

means for adjusting the cardiovascular wall temperature measurement based on the distance determination; and

means for determining the vulnerable plaque based on the adjusted cardiovascular wall temperature measurement.

19. The system of claim 18 further comprising:

means for determining a baseline temperature of the cardiovascular lumen wall based on a plurality of adjusted cardiovascular wall temperature measurements;

means for comparing each adjusted cardiovascular wall temperature measurement to the baseline temperature; and

means for determining the vulnerable plaque when the adjusted cardiovascular wall temperature measurement is above the baseline temperature by at least a predetermined threshold.

20. The system of claim 18 further comprising:

means for measuring a fluid flow rate proximate the temperature sensor and the distance sensor with a flow sensor coupled to the guide member; and

means for adjusting the cardiovascular wall temperature measurement based on the fluid flow rate measurement.

21. The system of claim 18 further comprising:
means for applying a therapy for the vulnerable plaque.

22. The system of claim 18 further comprising:
means for determining a position of the vulnerable plaque; and
means for treating the vulnerable plaque.

23. An apparatus for determining vulnerable plaque comprising:
a temperature sensor operably coupled to a guide member; and
a distance sensor operably coupled to the guide member proximate the temperature sensor; wherein a measurement of a cardiovascular wall temperature is compensated by a measurement of a cardiovascular wall distance to determine the vulnerable plaque based on the compensated temperature measurement.

24. The apparatus of claim 23 further comprising:
a flow sensor operably coupled to the guide member proximate the temperature sensor and the distance sensor; wherein the measurement of the cardiovascular wall temperature is compensated by a measurement of a fluid flow rate.